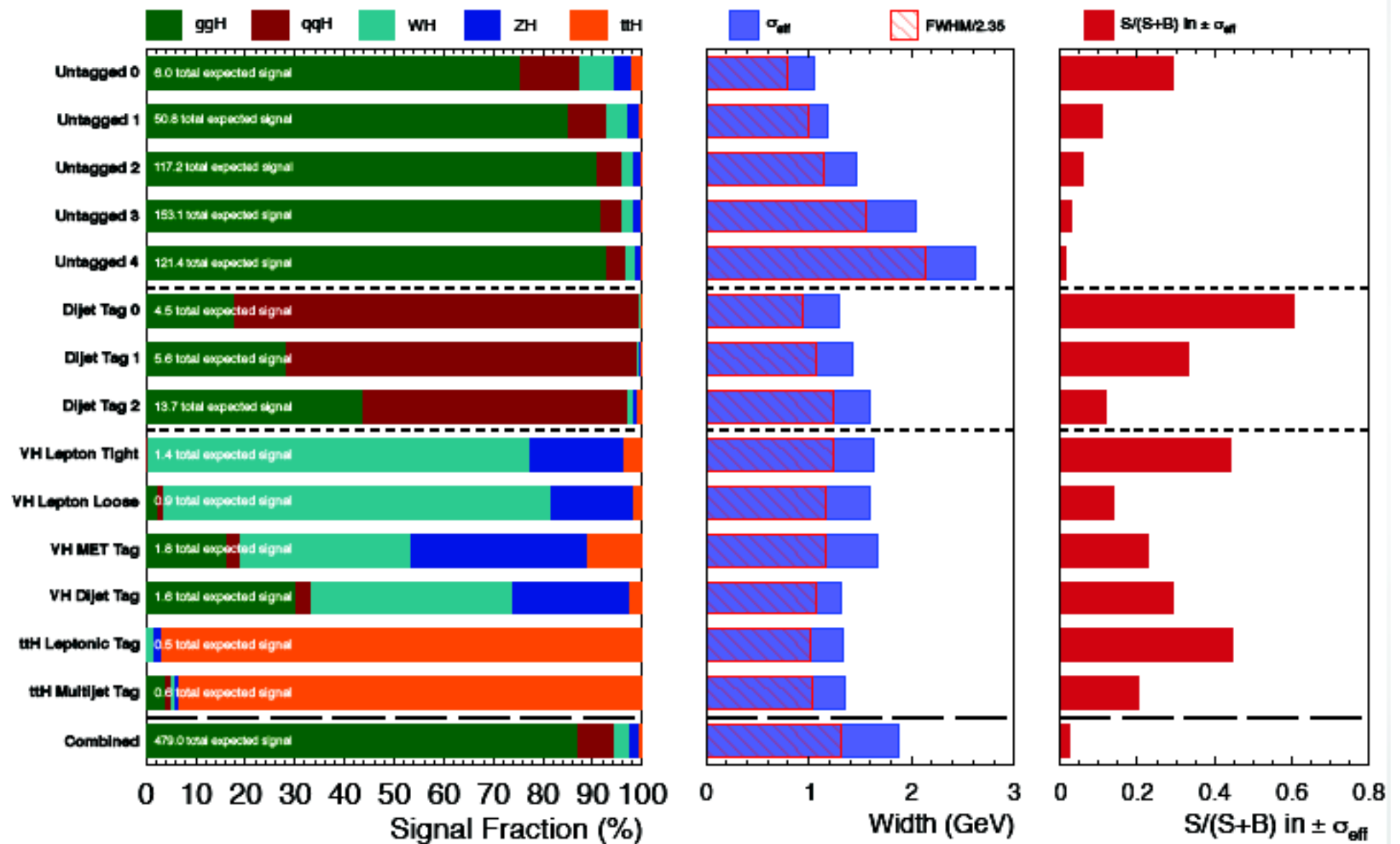


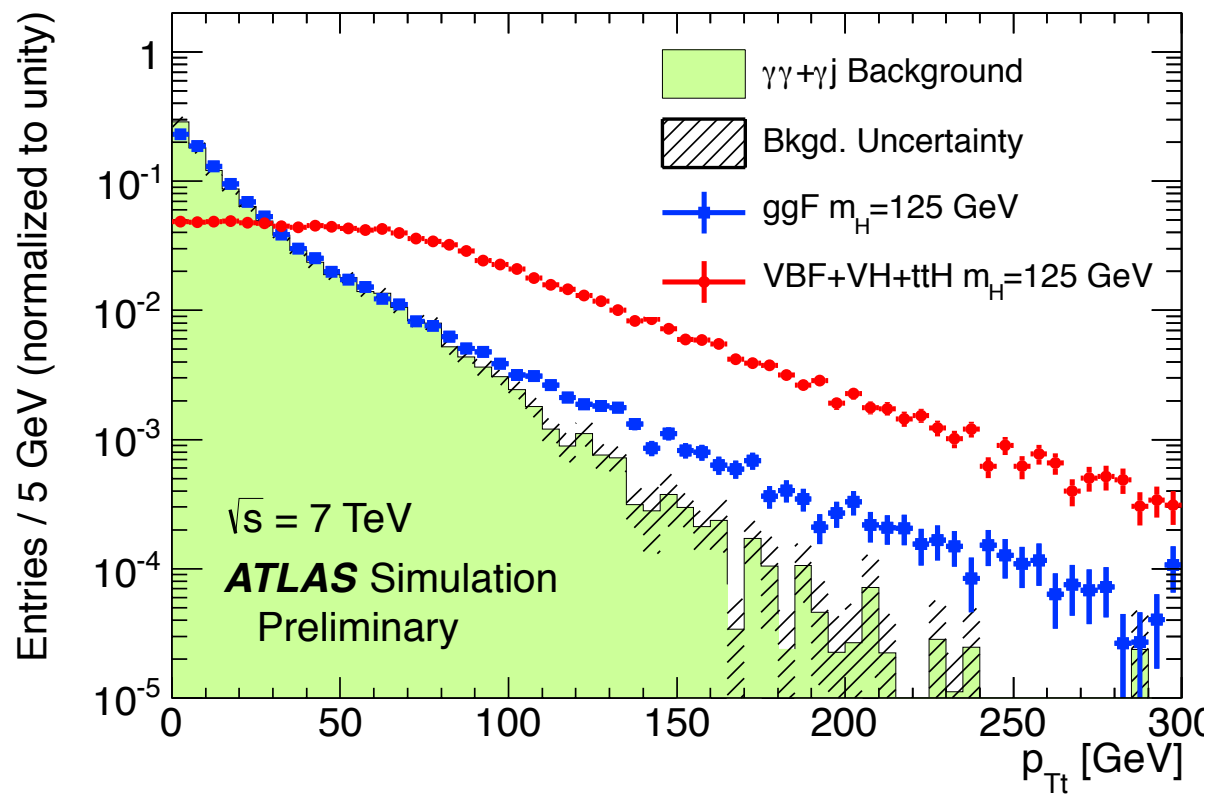
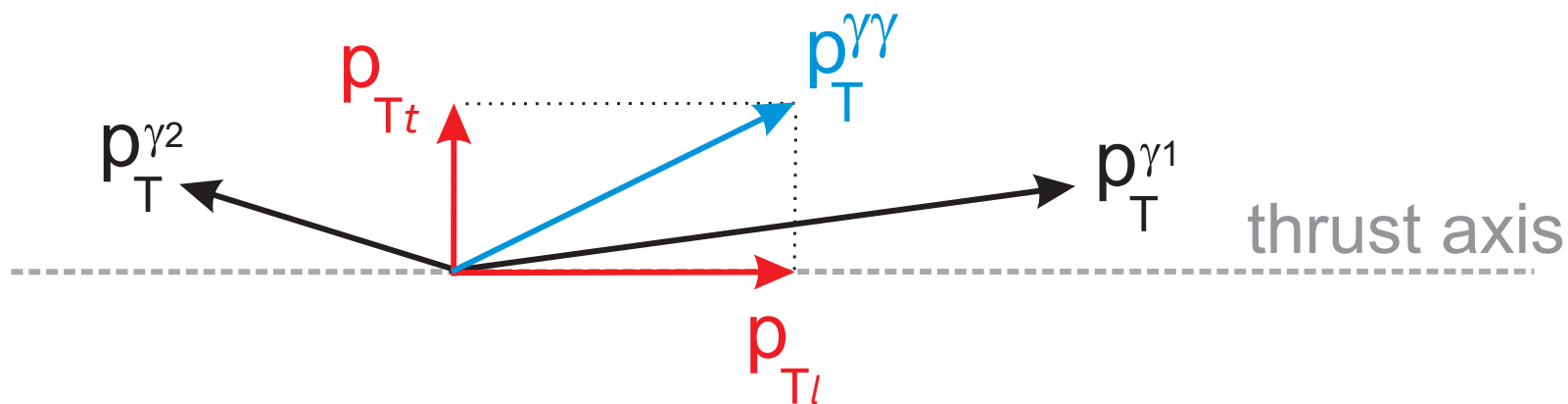
CMS Simulation $H \rightarrow \gamma\gamma$ ($m_H = 125 \text{ GeV}/c^2$)

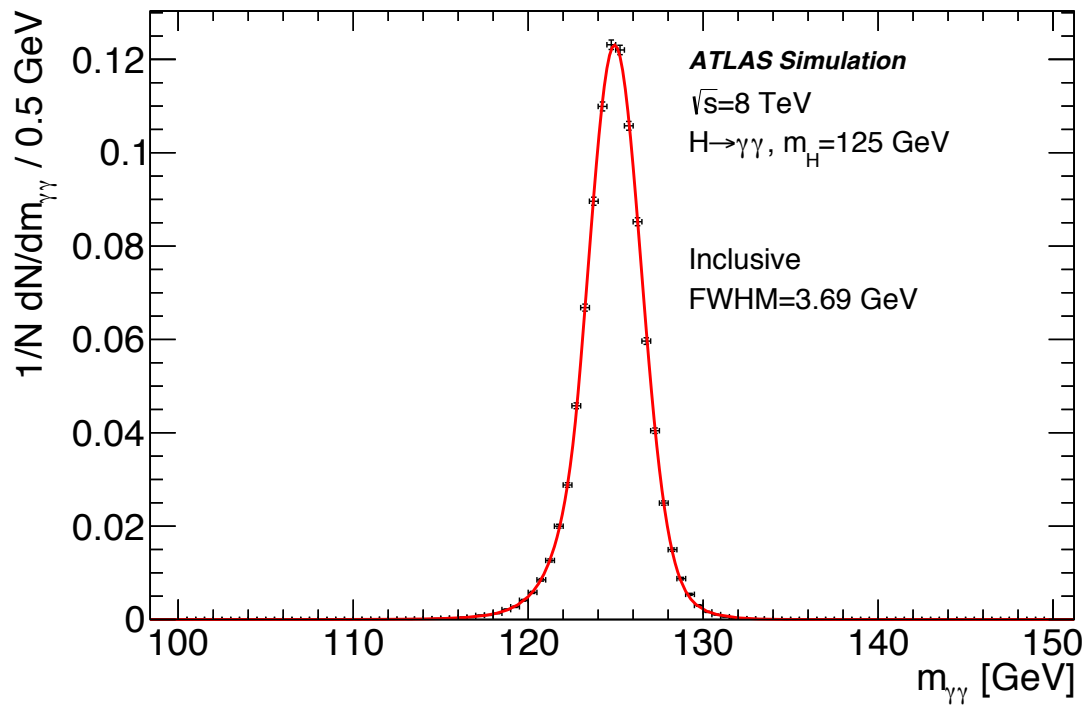
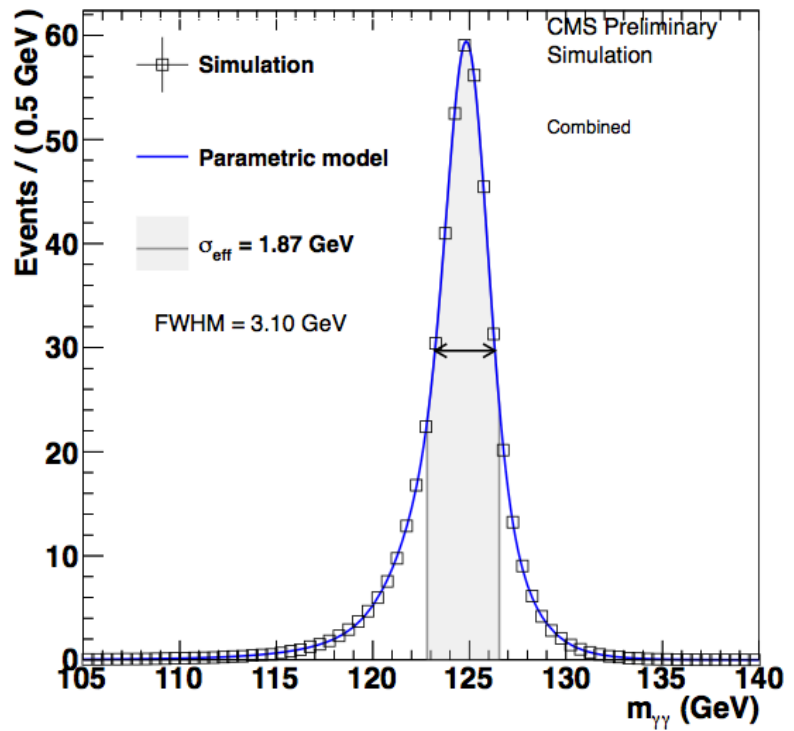


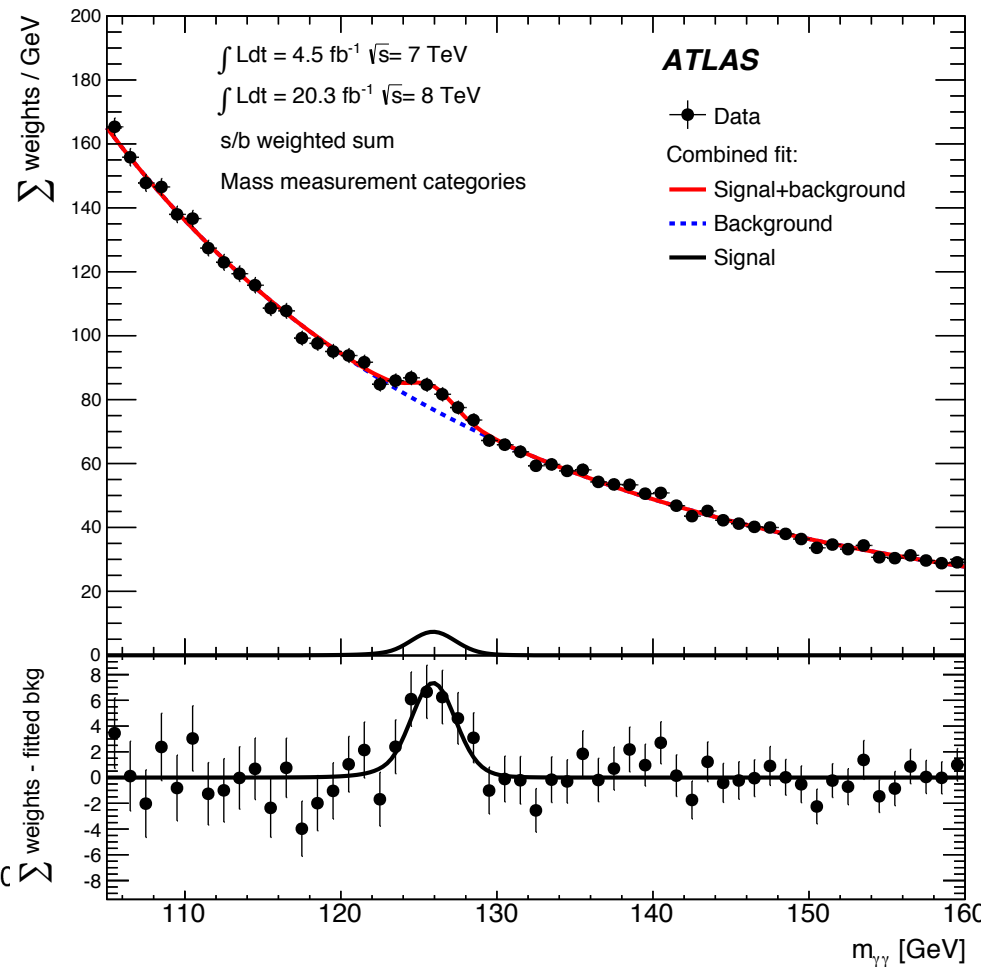
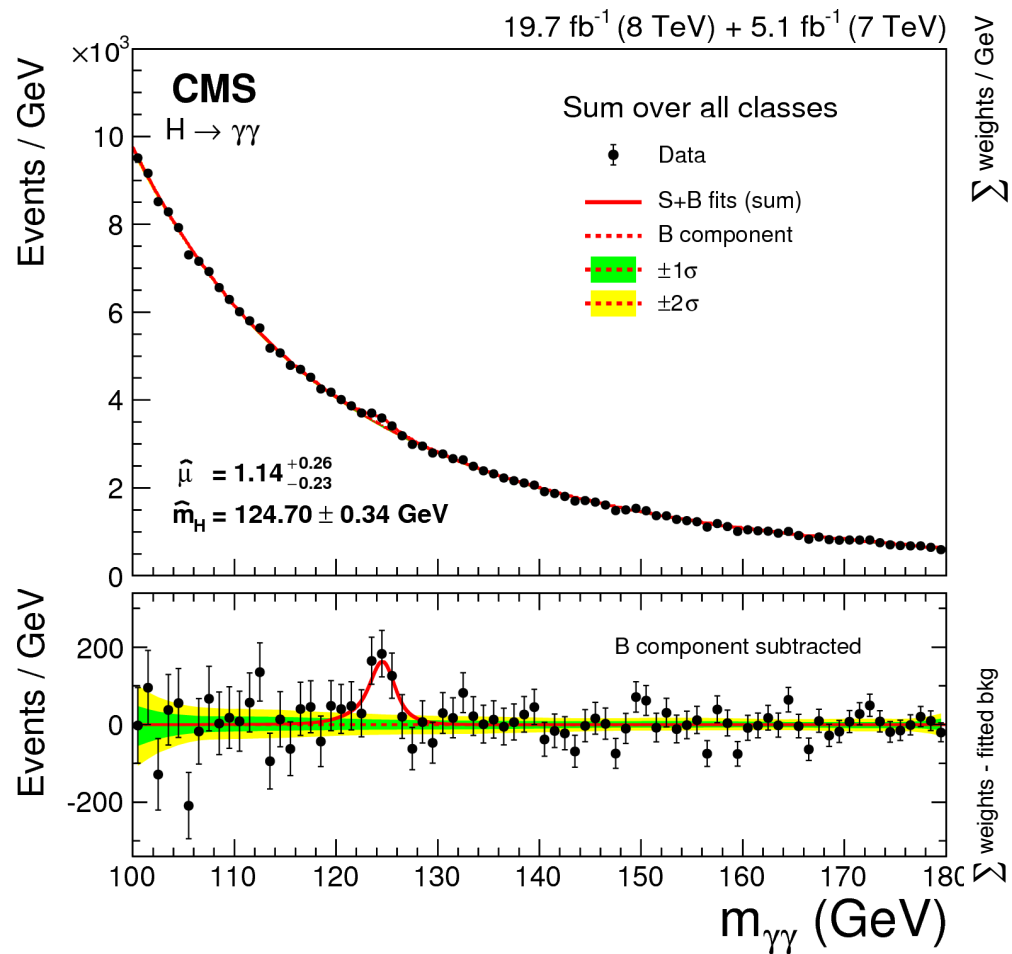
ATLAS simulation

Category	n_{sig}	FWHM [GeV]	σ_{eff} [GeV]	b in $\pm\sigma_{\text{eff}90}$	s/b [%]	s/\sqrt{b}
$\sqrt{s}=8$ TeV						
Inclusive	402.	3.69	1.67	10670	3.39	3.50
Unconv. central low p_{Tt}	59.3	3.13	1.35	801	6.66	1.88
Unconv. central high p_{Tt}	7.1	2.81	1.21	26.0	24.6	1.26
Unconv. rest low p_{Tt}	96.2	3.49	1.53	2624	3.30	1.69
Unconv. rest high p_{Tt}	10.4	3.11	1.36	93.9	9.95	0.96
Unconv. transition	26.0	4.24	1.86	910	2.57	0.78
Conv. central low p_{Tt}	37.2	3.47	1.52	589	5.69	1.38
Conv. central high p_{Tt}	4.5	3.07	1.35	20.9	19.4	0.88
Conv. rest low p_{Tt}	107.2	4.23	1.88	3834	2.52	1.56
Conv. rest high p_{Tt}	11.9	3.71	1.64	144.2	7.44	0.89
Conv. transition	42.1	5.31	2.41	1977	1.92	0.85
$\sqrt{s}=7$ TeV						
Inclusive	73.9	3.38	1.54	1752	3.80	1.59
Unconv. central low p_{Tt}	10.8	2.89	1.24	128	7.55	0.85
Unconv. central high p_{Tt}	1.2	2.59	1.11	3.7	30.0	0.58
Unconv. rest low p_{Tt}	16.5	3.09	1.35	363	4.08	0.78
Unconv. rest high p_{Tt}	1.8	2.78	1.21	13.6	11.6	0.43
Unconv. transition	4.5	3.65	1.61	125	3.21	0.36
Conv. central low p_{Tt}	7.1	3.28	1.44	105	6.06	0.62
Conv. central high p_{Tt}	0.8	2.87	1.25	3.5	21.6	0.40
Conv. rest low p_{Tt}	21.0	3.93	1.75	695	2.72	0.72
Conv. rest high p_{Tt}	2.2	3.43	1.51	24.7	7.98	0.40
Conv. transition	8.1	4.81	2.23	365	2.00	0.38

The p_{Tt} variable



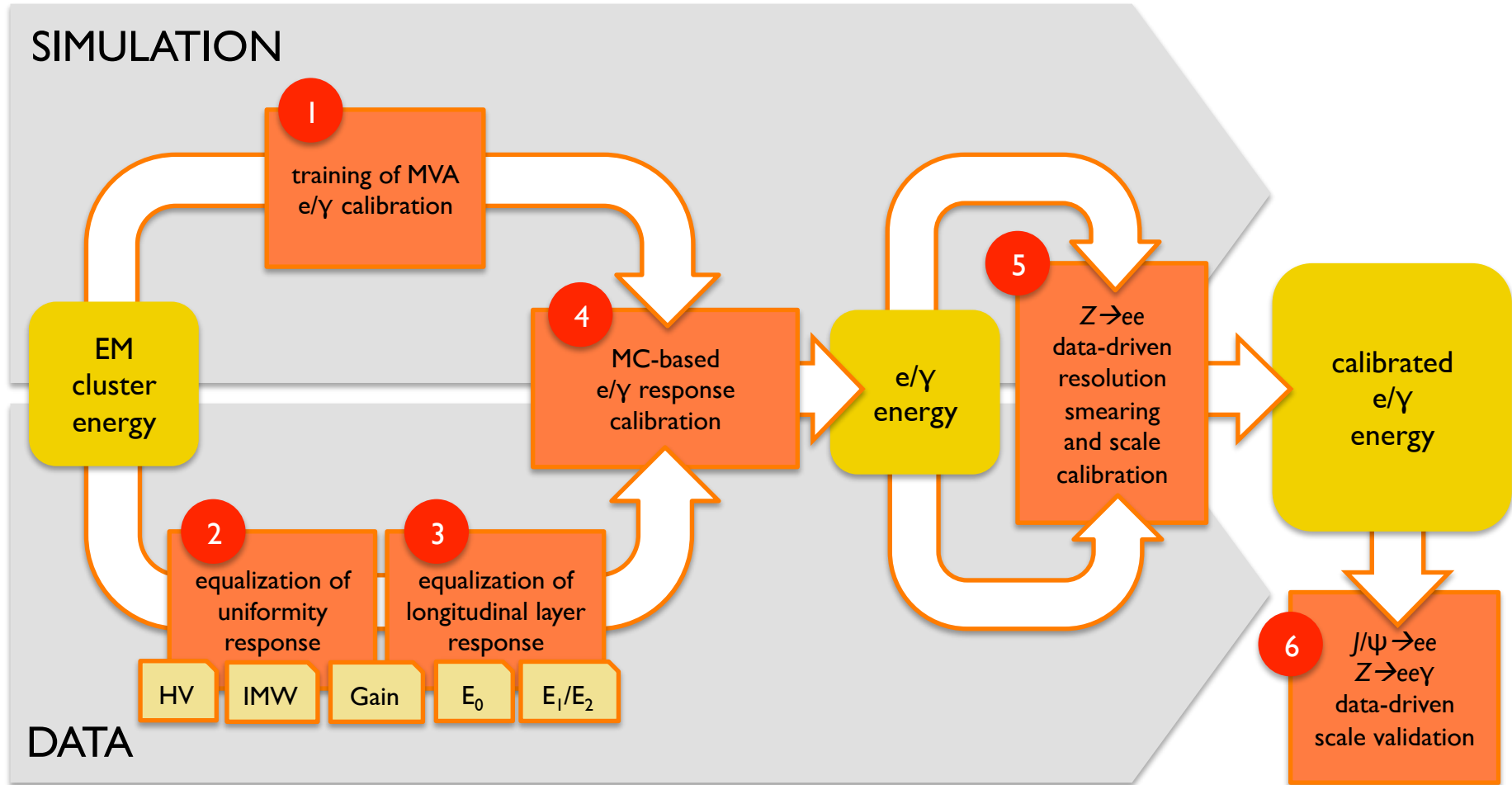




Mass results

		ATLAS (\pm stat \pm syst)	CMS (\pm stat \pm syst)
$\gamma\gamma$	NEW	$125.98 \pm 0.42 \pm 0.28$ GeV ($\mu = 1.30 \pm 0.29$)	$124.70 \pm 0.31 \pm 0.15$ GeV ($\mu = 1.14_{-0.23}^{+0.26}$)
	OLD	$126.8 \pm 0.2 \pm 0.7$ GeV ($\mu = 1.55 \pm 0.32$)	$125.4 \pm 0.5 \pm 0.6$ GeV ($\mu = 1.11 \pm 0.31$)
$4l$	NEW	$124.51 \pm 0.52 \pm 0.06$ GeV ($\mu = 1.66_{-0.38}^{+0.45}$)	$125.8 \pm 0.4 \pm 0.2$ GeV ($\mu = 0.93_{-0.25}^{+0.29}$)
	OLD	$124.3_{-0.5}^{+0.6} \text{ }_{-0.3}^{+0.5}$ GeV ($\mu = 1.43_{-0.35}^{+0.40}$)	- -
Comb	NEW	$125.36 \pm 0.37 \pm 0.18$ GeV	$125.03 \pm 0.26 \pm 0.14$ GeV
	OLD	$125.5 \pm 0.2 \text{ }_{-0.6}^{+0.5}$ GeV	$125.7 \pm 0.3 \pm 0.3$ GeV

ATLAS Calibration scheme



Source	Name	ATLAS	CMS
In situ calib	$Z \rightarrow ee$ calibration	0.04%	0.04%
e/ γ diff	Material tracker	0.07% (5% ID unc)	0.06% (10-20% ID unc)
	Other material	0.1%	-
	Longitudinal calib	0.1%	0.02%
	Lateral shower shape	0.06%	0.05%
Linearity		0.12% (MG/HG full effect)	0.08% (after corr)
Conversion classification		0.02%	-
Analysis	Background	0.04%	< 0.01%
	Vertex	0.03%	-
Total		0.22%	0.12%

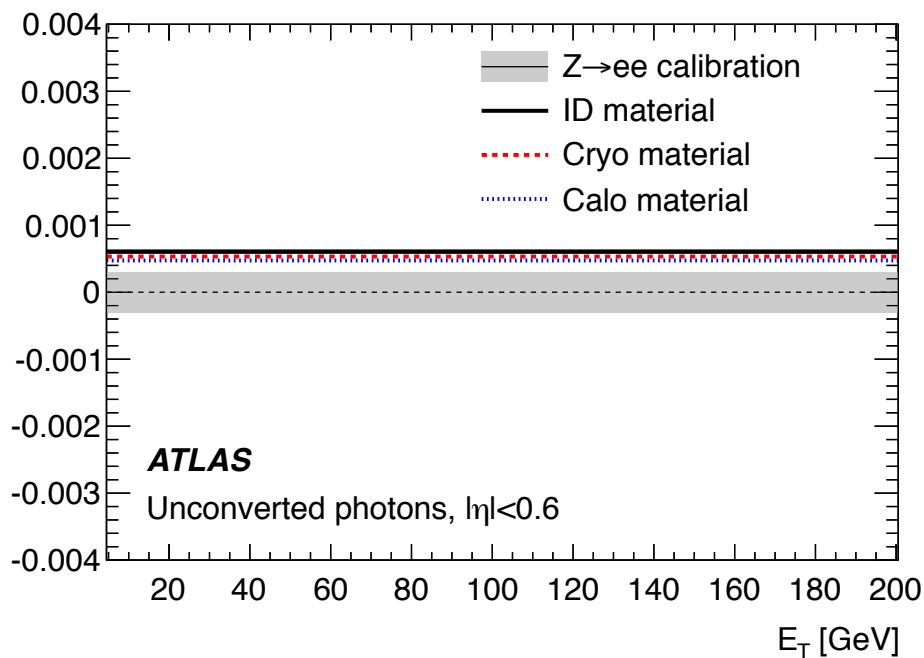
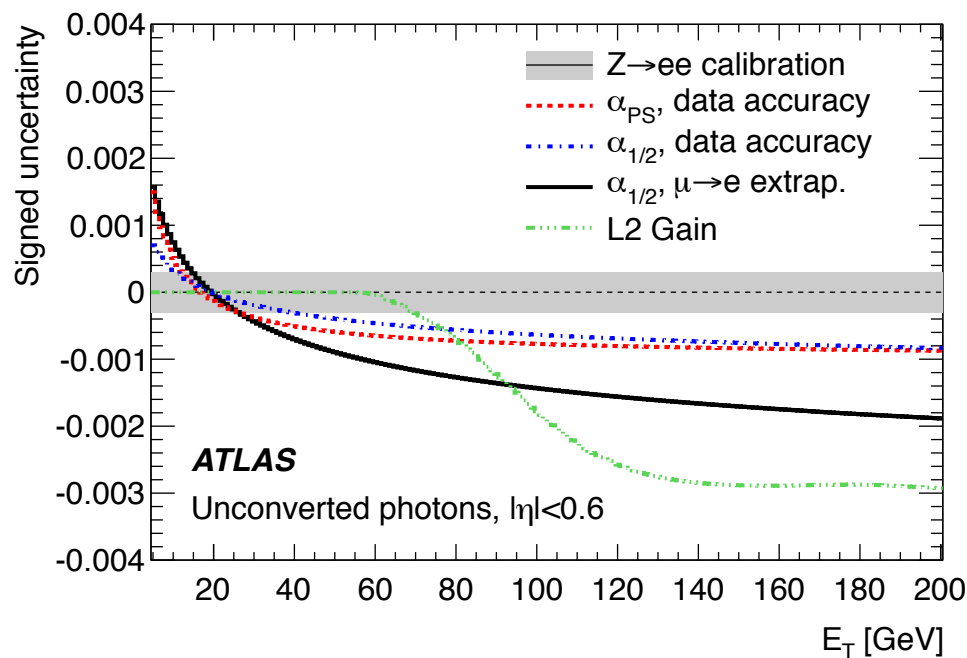
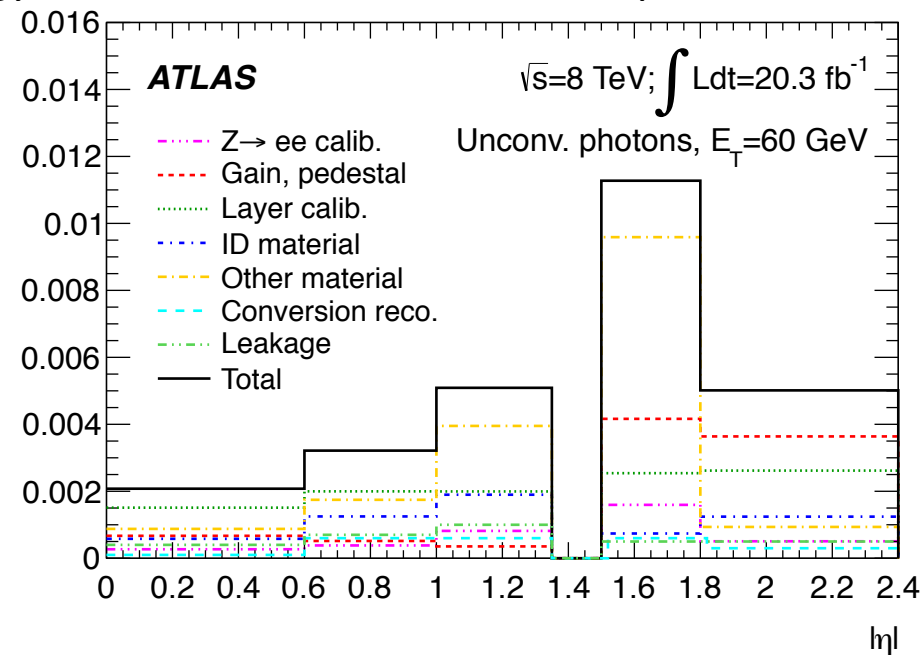
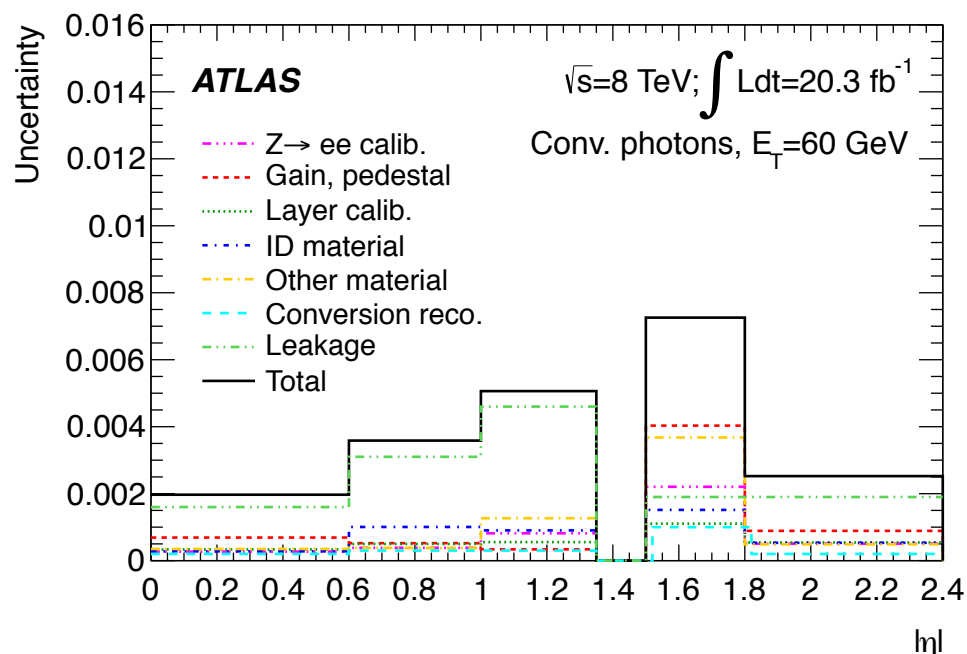
CMS

Source of uncertainty	Uncertainty in \hat{m}_H (GeV)	
Imperfect simulation of electron-photon differences	0.10	
Linearity of the energy scale	0.10	
Energy scale calibration and resolution	0.05	
Other	0.04	
All systematic uncertainties in the signal model	0.15	
	Statistical	0.31
	Total	0.35

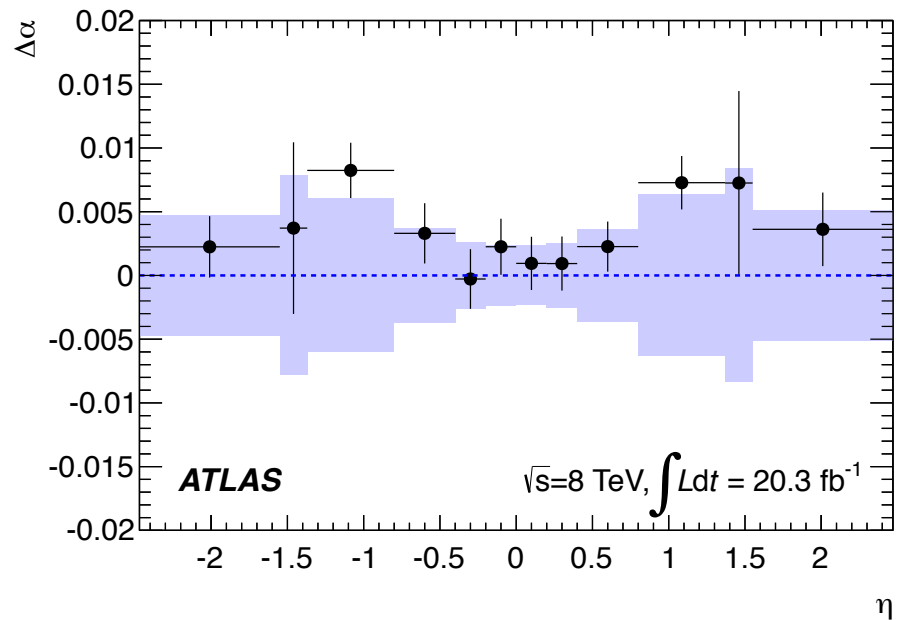
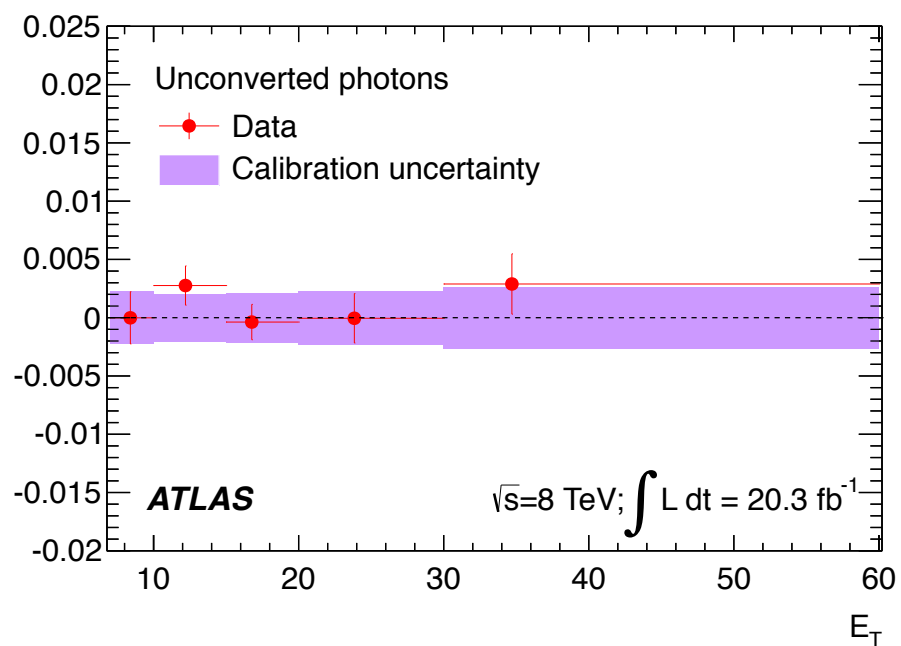
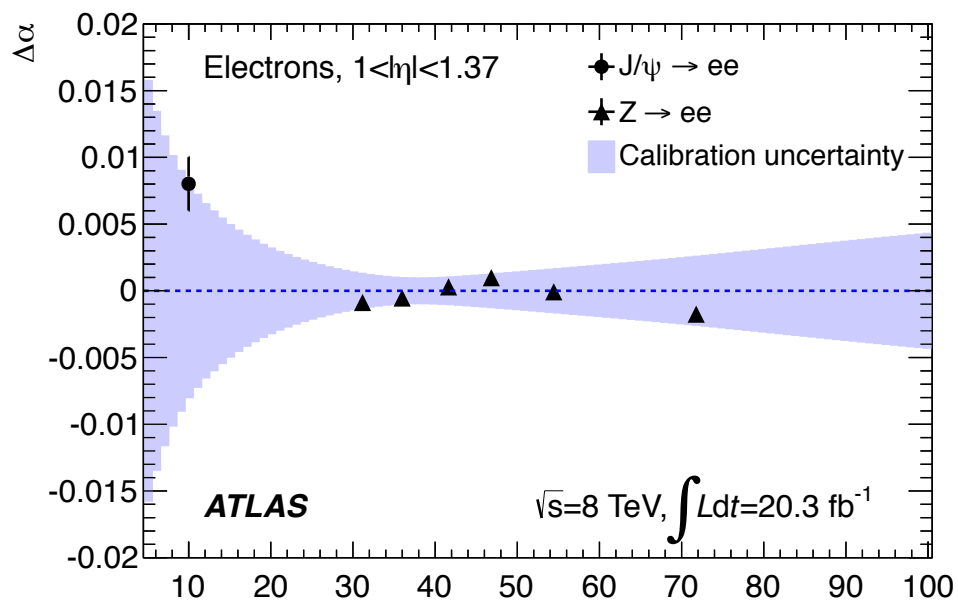
ATLAS

Class	Unconverted					Converted				
	Central		Rest		Trans.	Central		Rest		Trans.
	low p_{Tl}	high p_{Tl}	low p_{Tl}	high p_{Tl}		low p_{Tl}	high p_{Tl}	low p_{Tl}	high p_{Tl}	
$Z \rightarrow e^+e^-$ calibration	0.02	0.03	0.04	0.04	0.11	0.02	0.02	0.05	0.05	0.11
LAr cell non-linearity	0.12	0.19	0.09	0.16	0.39	0.09	0.19	0.06	0.14	0.29
Layer calibration	0.13	0.16	0.11	0.13	0.13	0.07	0.10	0.05	0.07	0.07
ID material	0.06	0.06	0.08	0.08	0.10	0.05	0.05	0.06	0.06	0.06
Other material	0.07	0.08	0.14	0.15	0.35	0.04	0.04	0.07	0.08	0.20
Conversion reconstruction	0.02	0.02	0.03	0.03	0.05	0.03	0.02	0.05	0.04	0.06
Lateral shower shape	0.04	0.04	0.07	0.07	0.06	0.09	0.09	0.18	0.19	0.16
Background modeling	0.10	0.06	0.05	0.11	0.16	0.13	0.06	0.14	0.18	0.20
Vertex measurement	0.03									
Total	0.23	0.28	0.24	0.30	0.59	0.21	0.25	0.27	0.33	0.47

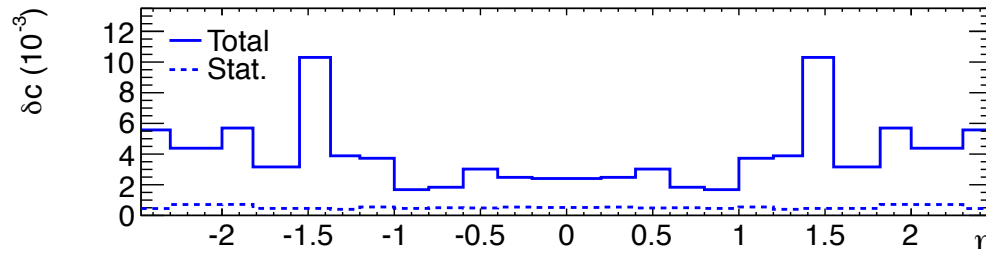
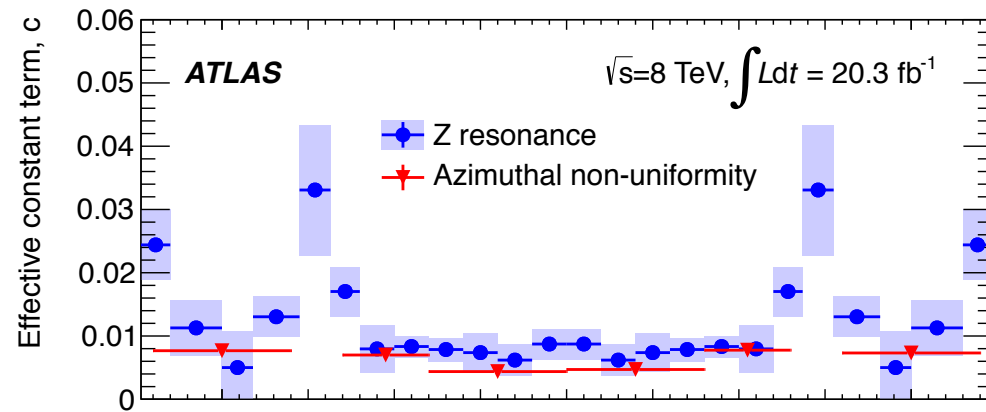
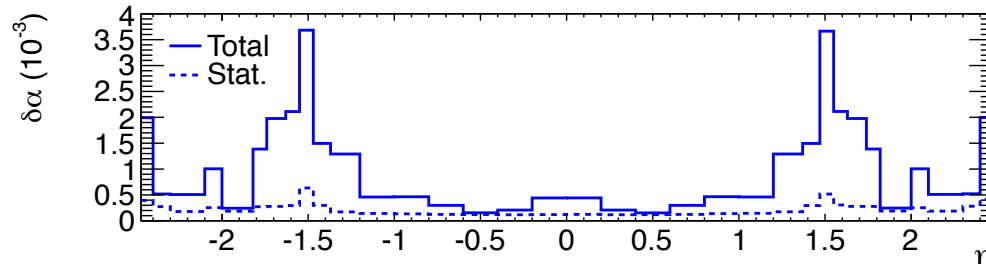
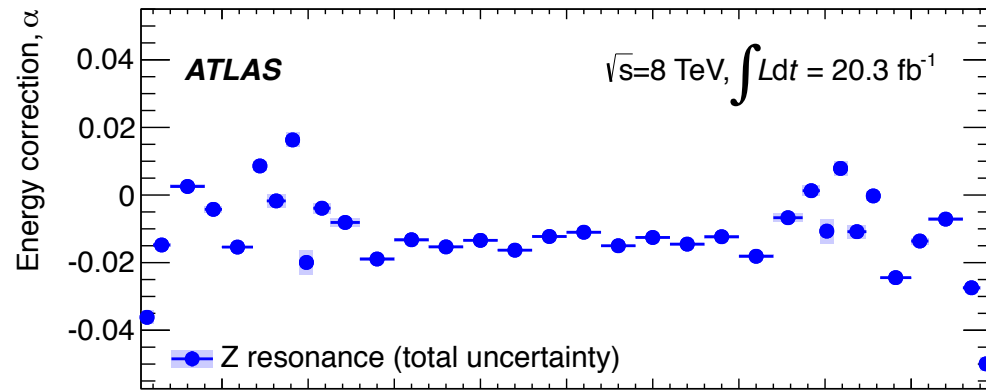
ATLAS breakdown of photon energy scale uncertainties, vs eta and pT



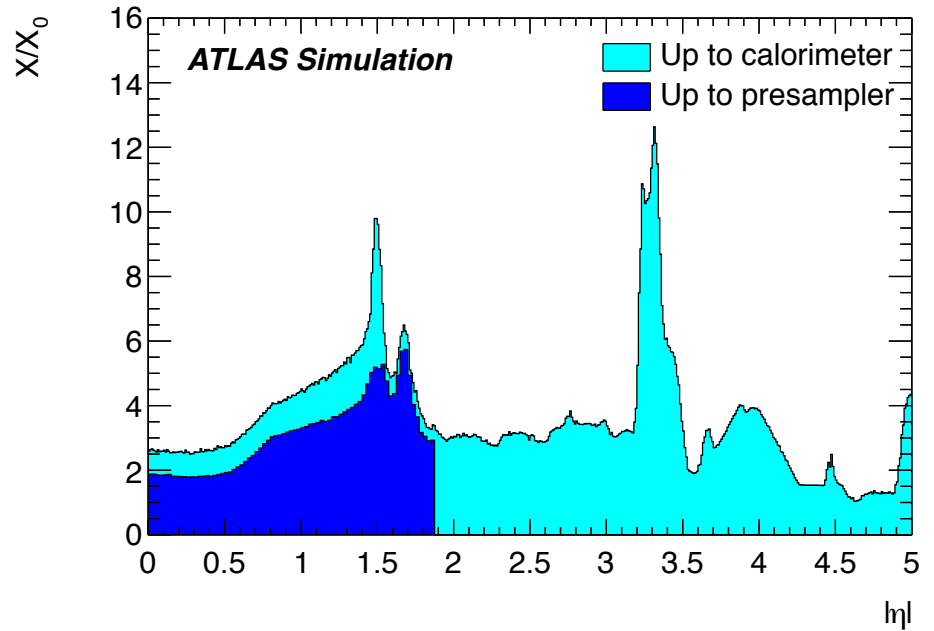
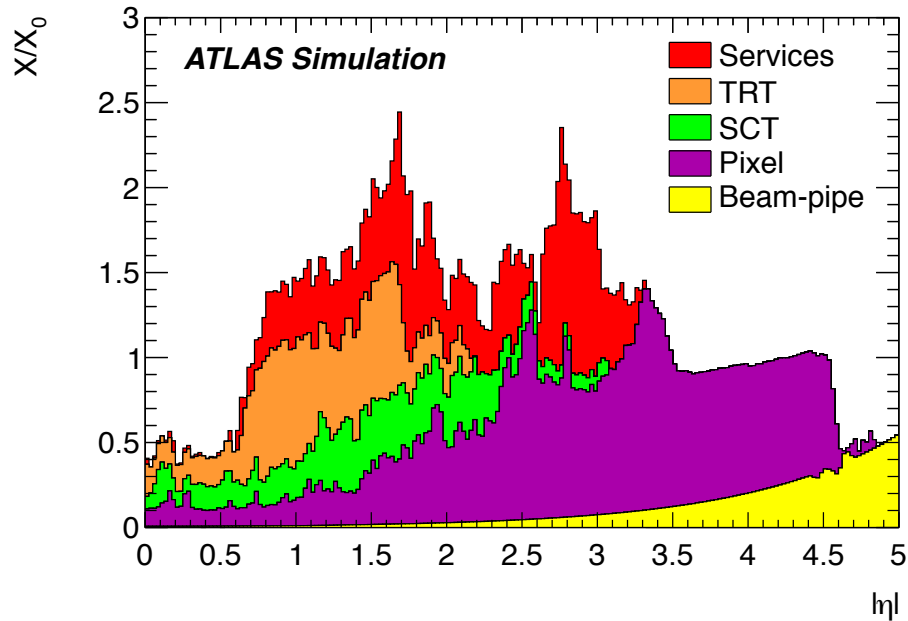
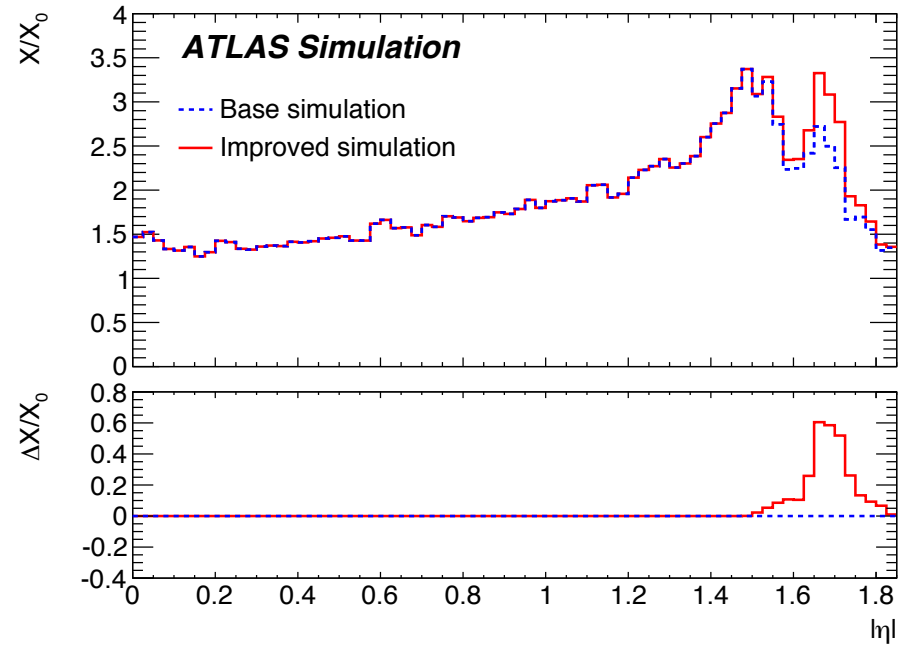
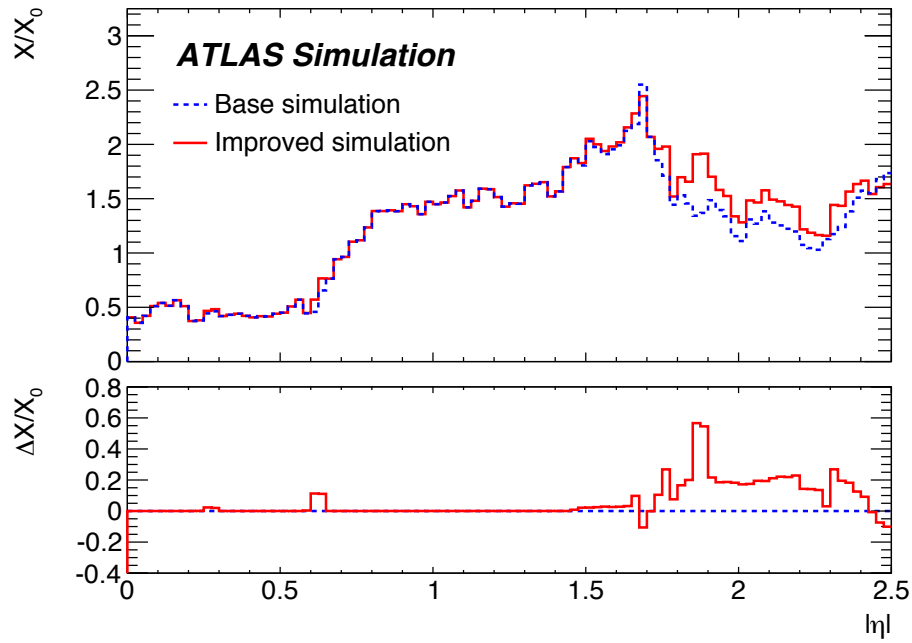
ATLAS Electron and photon calibration cross checks



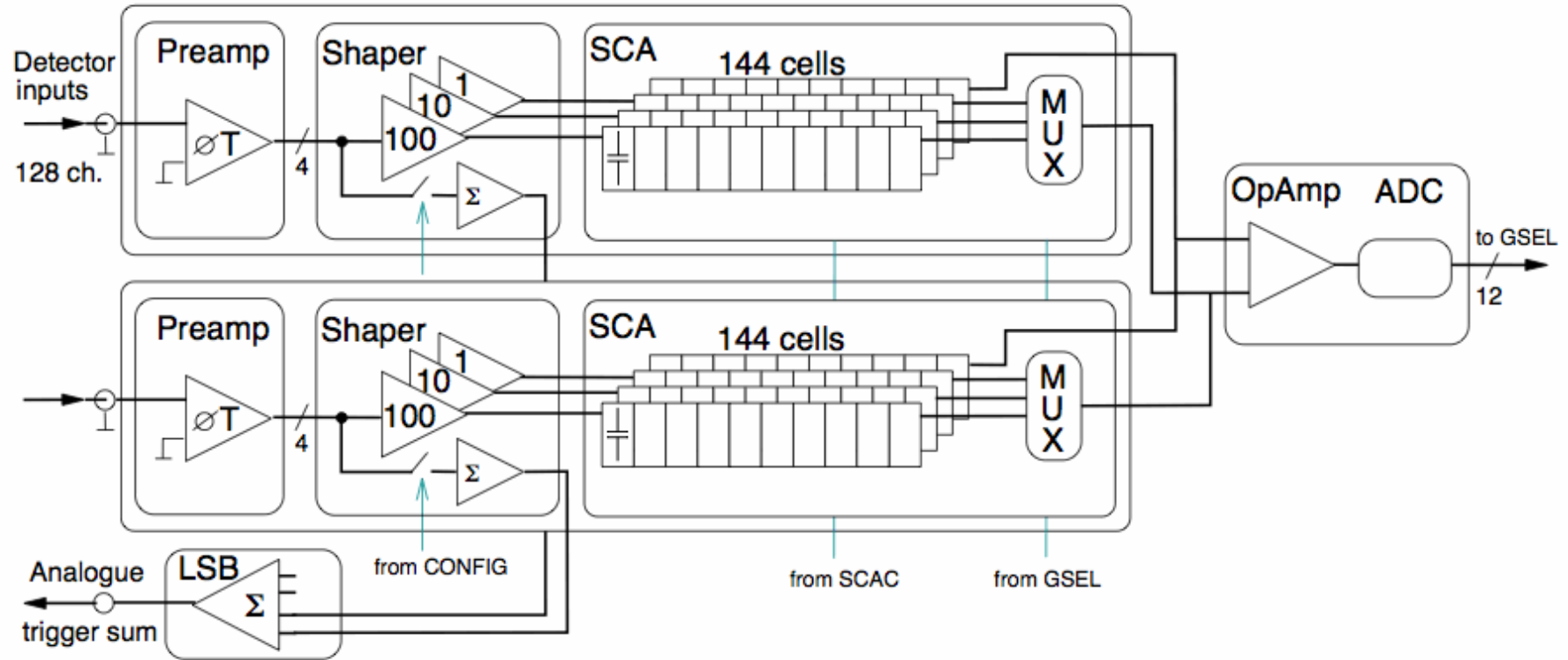
in-situ scale factor and resolution

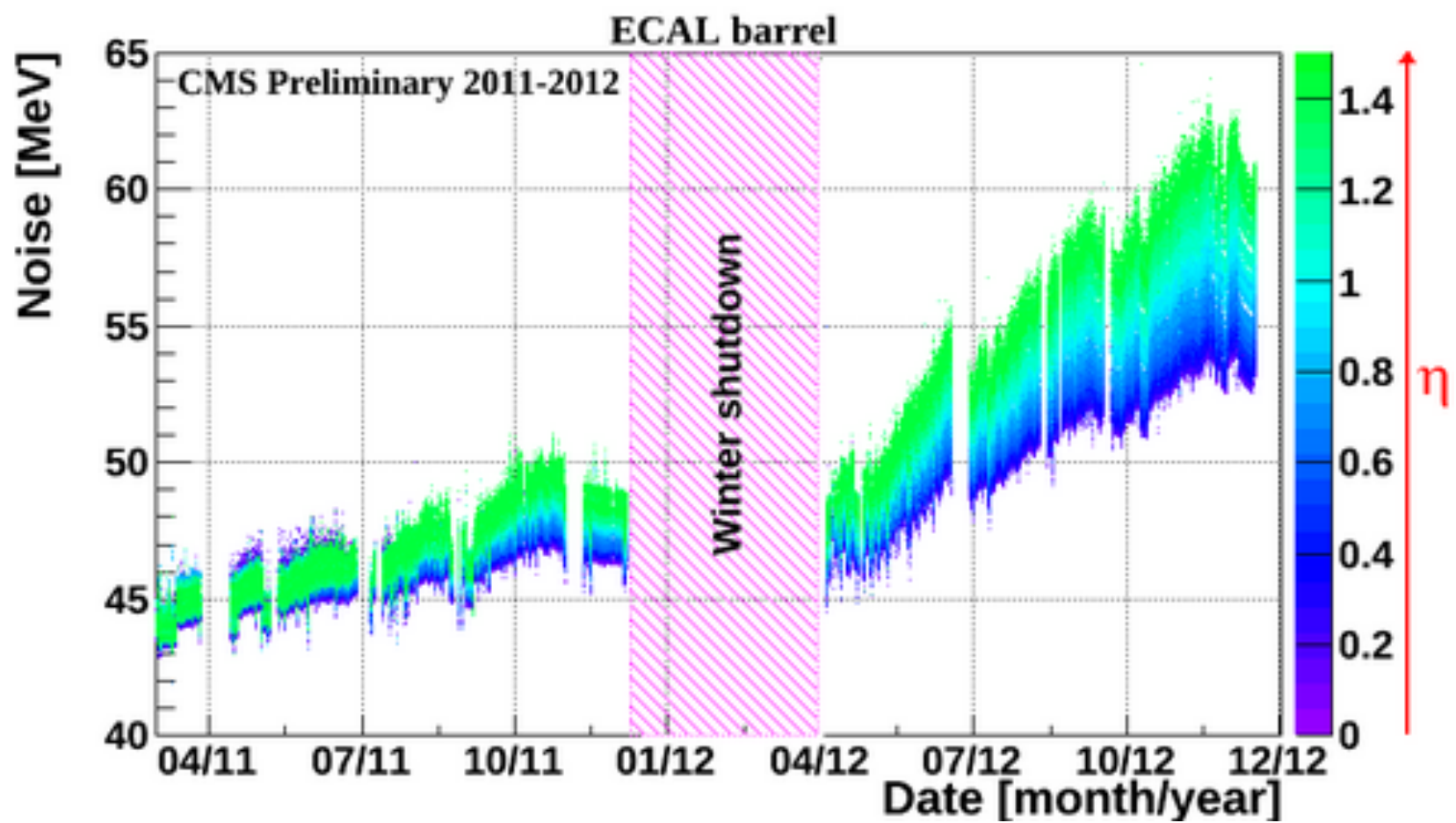


ATLAS distribution of material

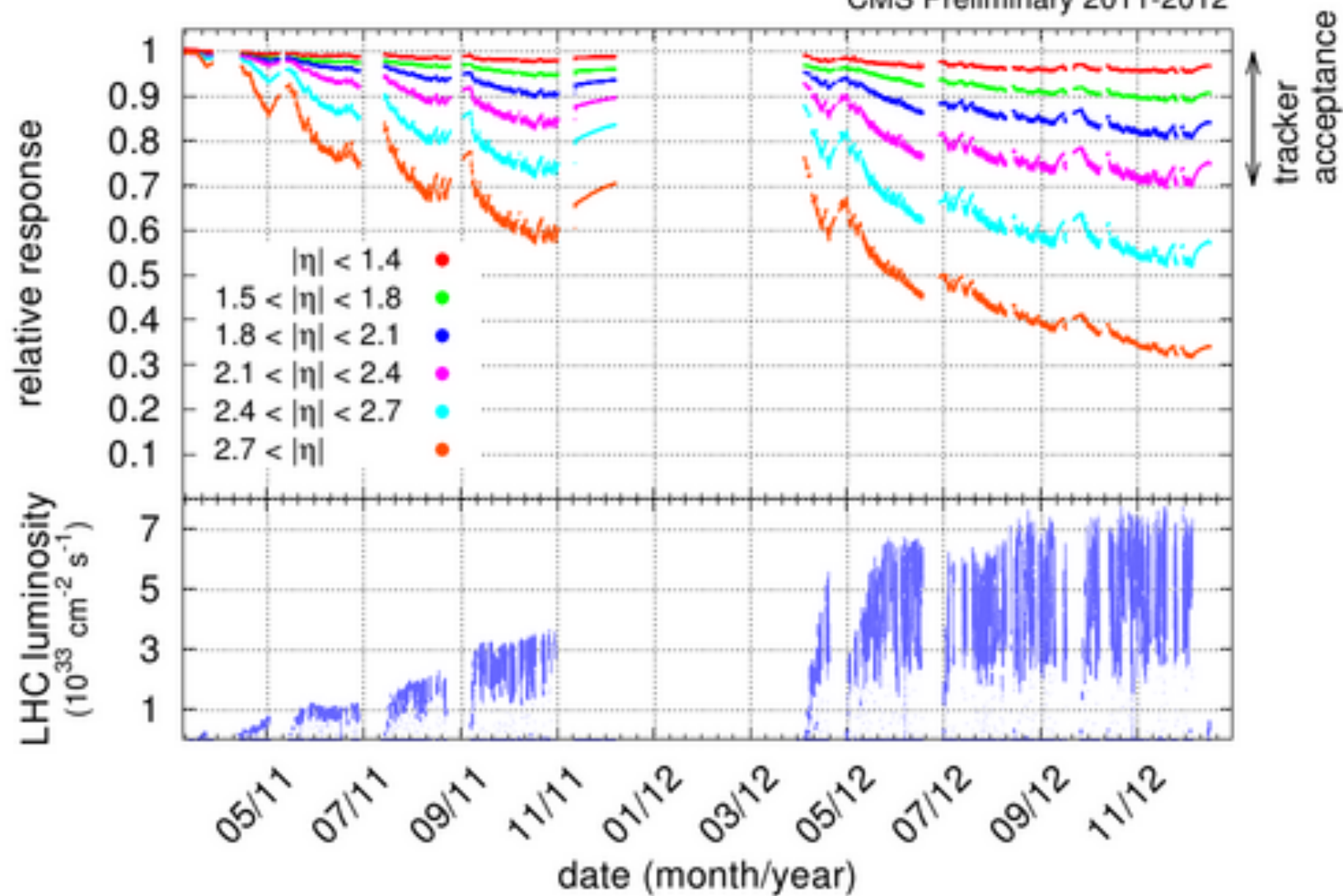


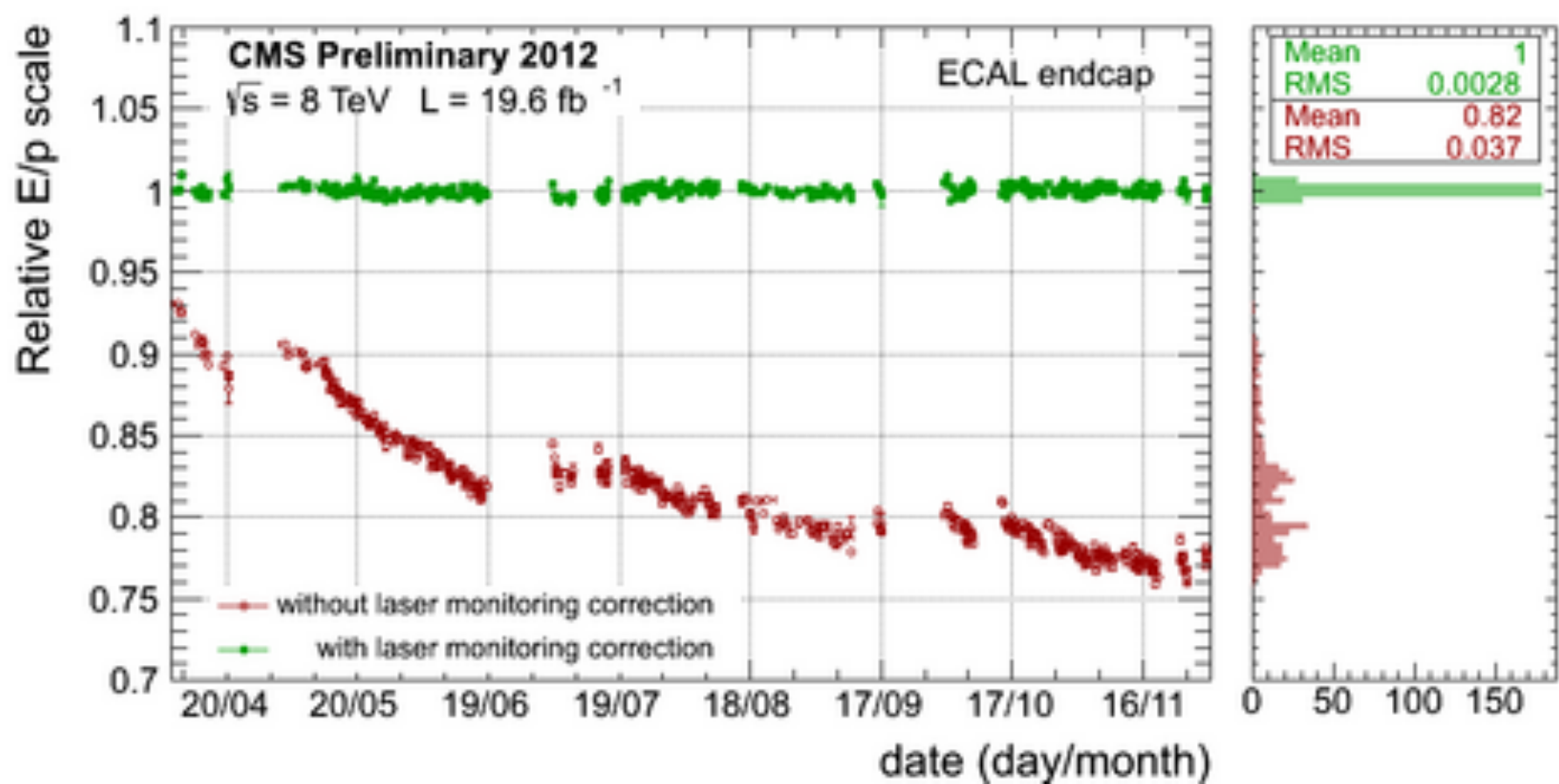
ATLAS LAr readout

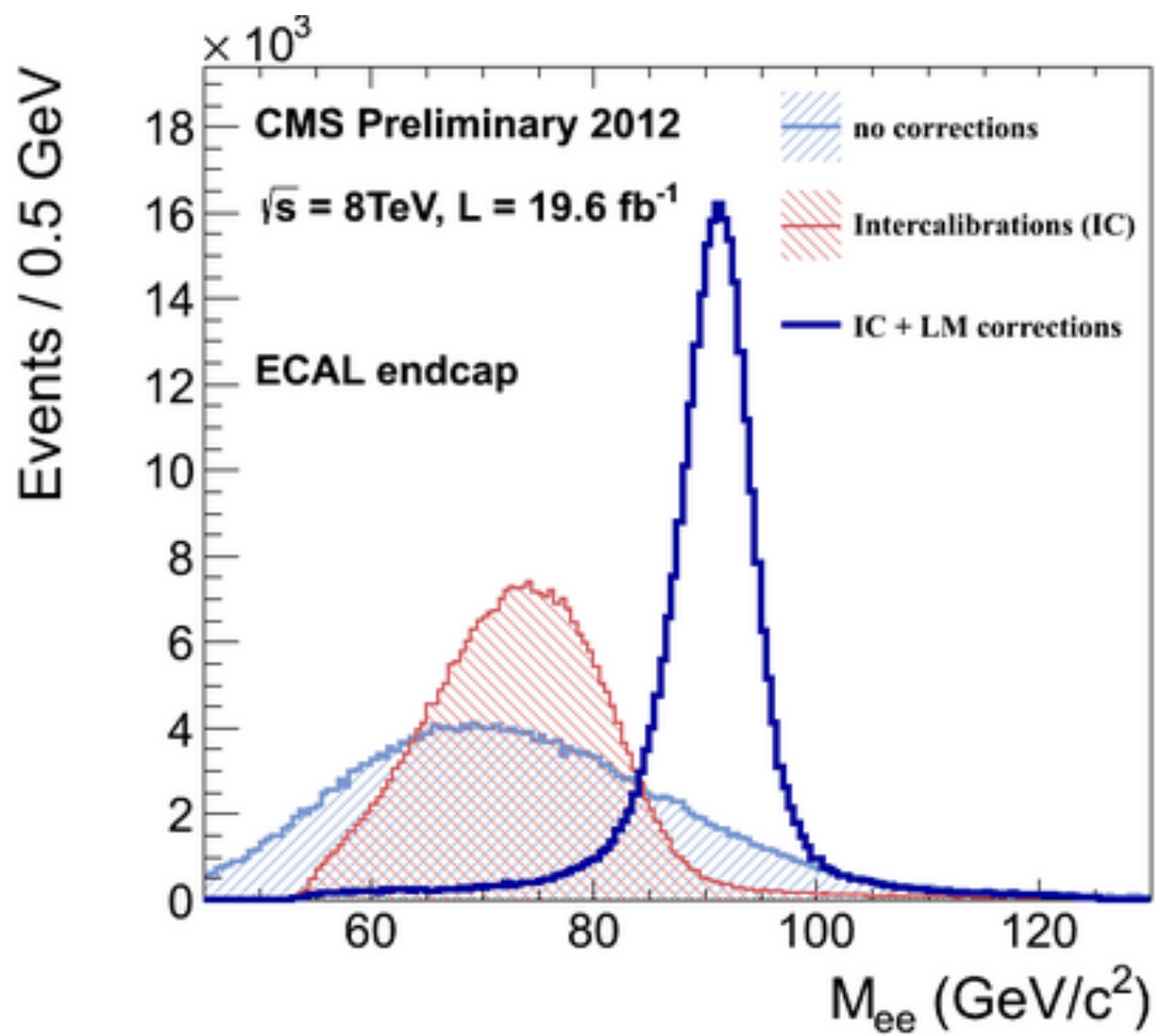




CMS Preliminary 2011-2012







Signal - Continuous background interference

